

# EXHIBIT 5

Trials@uspto.gov  
571-272-7822

Paper 11  
Date: October 5, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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MASIMO CORPORATION,  
Petitioner,

v.

APPLE INC.,  
Patent Owner.

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IPR2023-00734  
Patent 10,942,491 B2

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Before KEN B. BARRETT, JOSIAH C. COCKS, and  
ROBERT L. KINDER, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

DECISION  
Granting Institution of *Inter Partes* Review  
35 U.S.C. § 314

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## I. INTRODUCTION

### A. *Background and Summary*

Masimo Corporation (“Petitioner”)<sup>1</sup> filed a Petition requesting *inter partes* review of U.S. Patent No. 10,942,491 B2 (“the ’491 patent,” Ex. 1001). Paper 1 (“Pet.”). The Petition challenges the patentability of claims 1–19 of the ’491 patent. Apple Inc. (“Patent Owner”)<sup>2</sup> filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”). With our authorization, Petitioner filed a preliminary Reply (Paper 9, “Pet. Prelim. Reply”) and Patent Owner filed a preliminary Sur-reply (Paper 10, “PO Prelim. Sur-reply”).

An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). Having considered the arguments and evidence presented by Petitioner and Patent Owner, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on at least one of the challenged claims of the ’491 patent. Accordingly, we institute an *inter partes* review as to all the challenged claims of the ’491 patent on all the grounds of unpatentability set forth in the Petition.

### B. *Related Proceedings*

Both parties identify, as a matter involving or related to the ’491 patent, *Apple Inc. v. Masimo Corporation and Sound United, LLC*,

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<sup>1</sup> Petitioner identifies Masimo Corporation as the real party-in-interest. Pet. 1.

<sup>2</sup> Patent Owner identifies Apple Inc. as the real party-in-interest. Paper 3.

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No. 1:22-cv-01378-MN (D. Del.). Pet. 1; Paper 3. Patent Owner also states that “[p]rosecution is ongoing in four patent applications that are continuations of the ’491 Patent,” and identifies those as: 17/188,995, 17/951,973, 18/075,253, and 18/119,175. Prelim. Resp. 19.

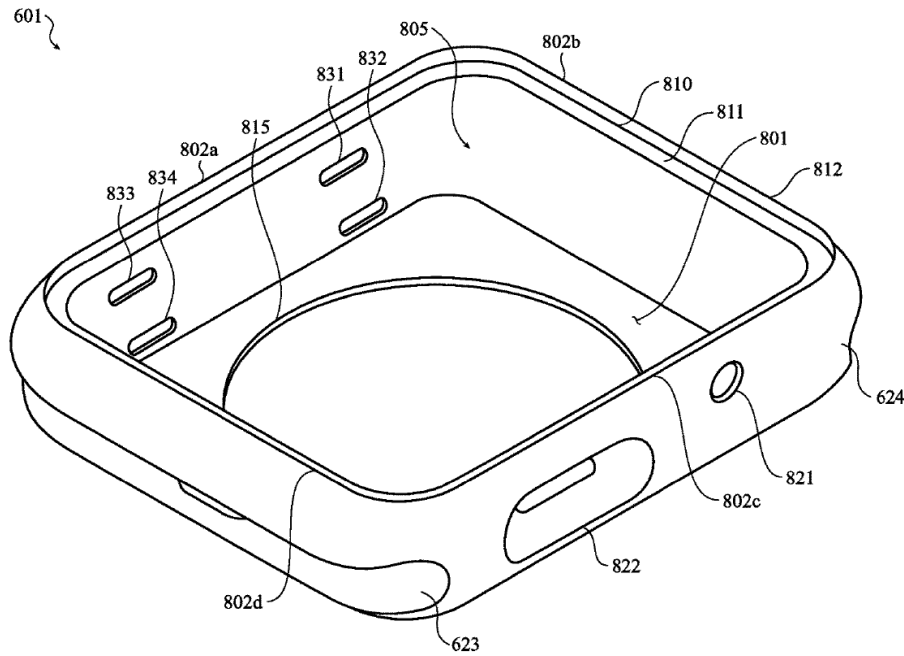
*C. The ’491 Patent*

The ’491 patent pertains to “a wearable electronic device having a range of features, including touch input, force input, an interchangeable attachment system, health monitoring functionality, wireless power charging, wireless authentication and transaction functionality, and other features and functionality.” Ex. 1001, 1:23–28. A wristwatch is an example of the wearable electronic device. *See id.* at 6:59–7:4. According to the ’491 patent, “some traditional portable electronic devices, particularly wearable electronic devices, may have relatively limited functionality or are only able to perform a specialized set of functions or tasks.” *Id.* at 1:35–39. The Specification states that it addresses this by describing embodiments that “are directed to a wearable electronic device that provides a wide range of functionality, as compared to some traditional wearable electronic devices.” *Id.* at 1:42–45.

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Figure 8 of the '491 patent is reproduced below.



**FIG. 8**

Figure 8 “depicts an example housing for a wearable electronic device.” *Id.* at 6:15–16. As shown, an opening or aperture 815 is formed in bottom portion 801 of housing 601. *Id.* at 30:65–66.

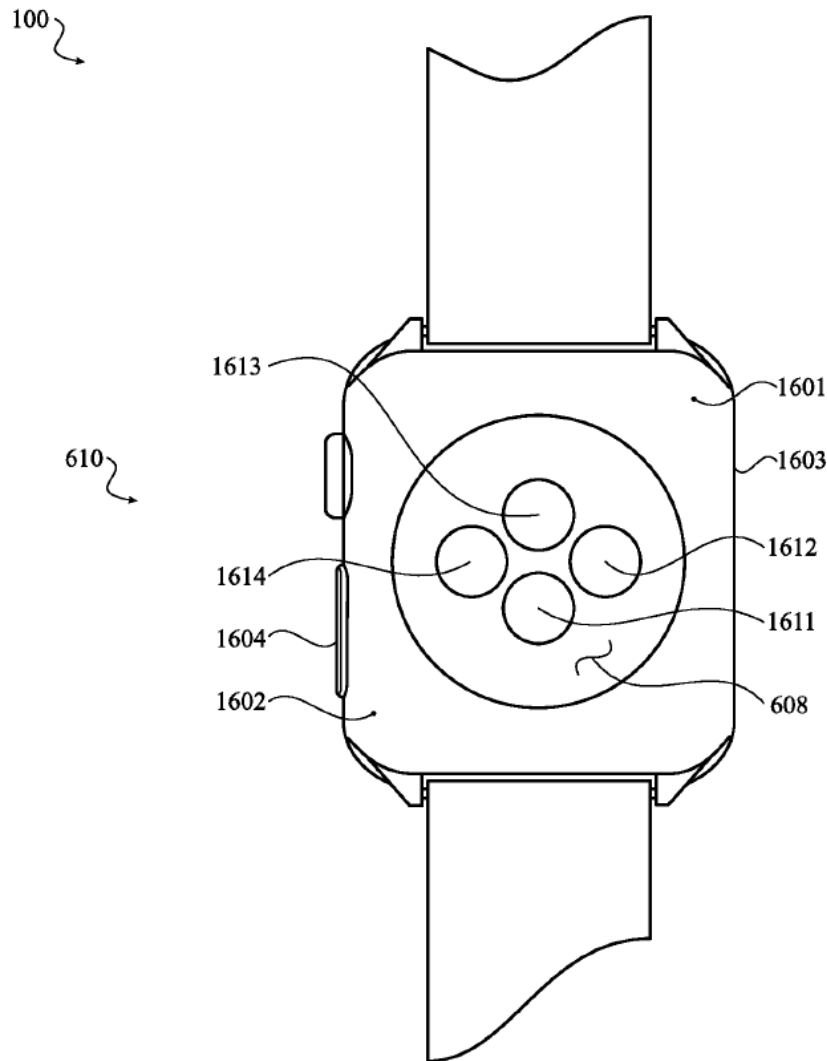
In some example embodiments, the device includes a biosensor module that is disposed in an opening formed in the flat bottom portion of the housing. The biosensor module may include a chassis positioned in the opening of the housing and defining an array of windows. An array of light sources may be attached to the chassis and configured to emit light into the user through the array of windows. The biosensor module may also include an optically transparent rear cover disposed over the chassis and over the array of windows and operative to pass light emitted from the array of light sources into the user.

*Id.* at 2:47–57.

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Figure 16 of the '491 patent is reproduced below.



**FIG. 16**

Figure 16 “depicts an example device having biosensors.” *Id.* at 6:29. Shown is an array of light sources 1611–1613 and detector 1614 that, together, may be configured to function as an optical sensor such as a photoplethysmography (PPG) sensor, which may be used to compute, for example, heart rate. *Id.* at 38:23–26, 38:37–41, 38:65–39:2. Also shown are first electrode 1601 and second electrode 1602 disposed on the rear face of the device 100 and that may be configured to make contact with the skin of

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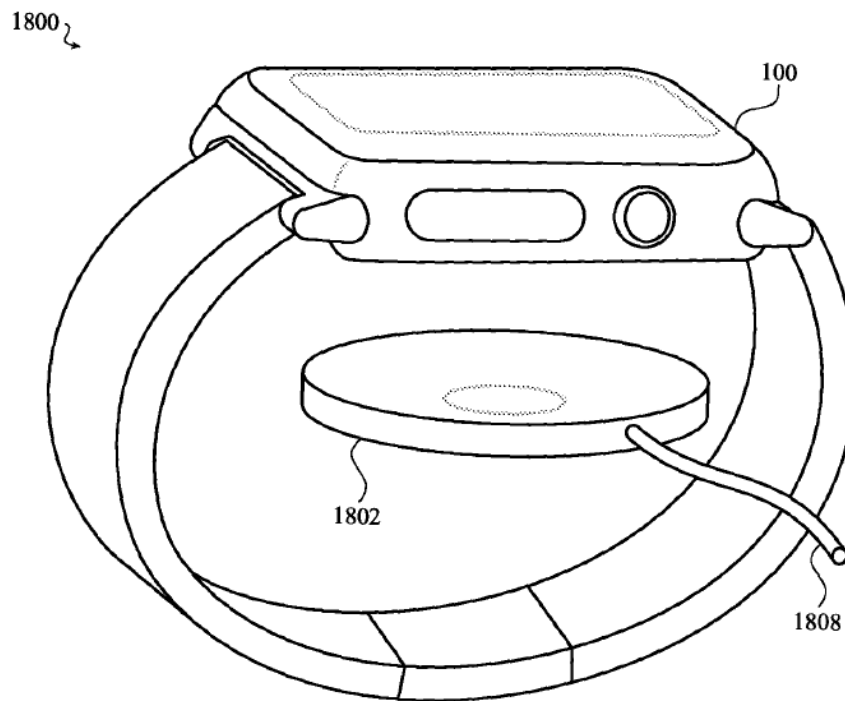
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the user's wrist when the device is being worn. *Id.* at 39:40–46. “[T]he electrodes may be configured to detect electrical activity produced by the heart of the user to measure heart function or produce an electrocardiograph (ECG).” *Id.* at 39:67–40:3.

The device may also include a receive coil within the housing configured to inductively couple with an external transmit coil. A power conditioning circuit may be configured to recharge the rechargeable battery using power received by the receive coil. . . . The device may also include a first alignment magnet positioned within the receive coil and configured to align the device with respect to a second alignment magnet positioned within the external transmit coil.

*Id.* at 5:35–44.

Figure 18 of the '491 patent is reproduced below.



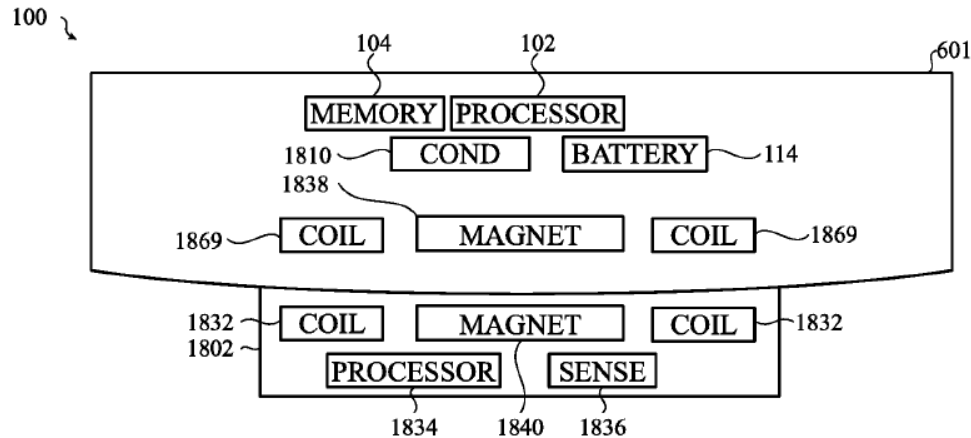
**FIG. 18**

Figure 18 “depicts a front perspective view of an example wireless power transfer system 1800 in an unmated configuration” and “shows an inductive

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power transmitter dock 1802 that is configured to couple to and wirelessly transmit power to an inductive power receiver accessory, in this case device 100.” *Id.* at 43:4–9.

Figure 19 of the ’491 patent is reproduced below.



**FIG. 19**

Figure 19 “depicts a block diagram of an example inductive charging system.” *Id.* at 6:34–35. “[T]he device 100 includes a receive coil 1869 having one or more windings for inductively coupling with a transmit coil 1832 of the dock 1802.” *Id.* at 44:39–41. “The receive coil 1869 may receive power wirelessly from the dock 1802 and may pass the received power to a battery 114 within the device 100 via power conditioning circuit 1810.” *Id.* at 44:41–44.

#### *D. Illustrative Claim*

Of the challenged claims of the ’491 patent, claims 1, 7, and 14 are independent claims. Claim 7 reproduced below with Petitioner’s annotations inserted is illustrative.

7. [7a] A wearable electronic device comprising:
- [7b] a housing formed from a conductive material and defining a first opening opposite to a second opening;



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- [7c] a band attached to the housing and configured to secure the wearable electronic device to a user;
- [7d] a display positioned in the first opening;
- [7e] a cover comprising a non-conductive material and positioned over the second opening, the cover forming a portion of an exterior surface of the wearable electronic device;
- [7f] a biosensor module positioned below the cover configured to pass an optical signal through a window defined within the non-conductive material of the cover; and
- [7g] a wireless charging receive coil aligned with the second opening and below the cover, the wireless charging receive coil configured to inductively couple to an external wireless charging device through the non-conductive material of the cover.

Ex. 1001, 58:50–67.

*E. Evidence*

Petitioner relies on the following references:

<b>Name</b>	<b>Reference</b>	<b>Exhibit(s)</b>
Kotanagi	WO 2005/092182 A1, published Oct. 6, 2005	1005
Honda	US 6,265,789 B1, issued July 24, 2001	1006
Choi	WO 2015/034149 A1, published March 12, 2015	1011
Park	US 2015/0214749 A1, published July 30, 2015	1012
Jabori	WO 2015/116111 A1, published Aug. 6, 2015	1017
Orr	US 4,163,447, issued Aug. 7, 1979	1025
Fraser	US 2015/0355604 A1, published Dec. 10, 2015	1041

Petitioner also relies on the declaration of R. James Duckworth, Ph.D. (Ex. 1003) in support of its arguments. The parties also rely on other exhibits as discussed below.

*F. Asserted Grounds of Unpatentability*

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

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Claim(s) Challenged	35 U.S.C. § <sup>3</sup>	Reference(s)/Basis
7, 11, 14, 16	103	Kotanagi, Honda
1–3, 5, 13, 17	103	Kotanagi, Honda, Choi
8, 15	103	Kotanagi, Honda, Fraser
9	103	Kotanagi, Honda, Orr
12, 18	103	Kotanagi, Honda, Park
4	103	Kotanagi, Honda, Choi, Park
10, 19	103	Kotanagi, Honda, Jabori
6	103	Kotanagi, Honda, Choi, Jabori

## II. THE PROSECUTION HISTORY

Early in prosecution, independent application claim 21, for example, recited, *inter alia*, an electronic watch having a metal housing, a touch-sensitive display, a watch band, a dielectric cover over a rear opening, an optical sensor (to measure a heart rate) configured to transmit signals through the rear dielectric cover, and two electrodes (to measure an electrocardiogram) on the rear of the watch. Ex. 1002, 1215 (Preliminary Amendment). Dependent application claim 24 added to the claimed watch a wireless charging coil “configured to receive wireless power through the cover.” *Id.* The Examiner articulated several rejections of the then-pending claims, *id.* at 1123–1129, including a rejection of independent application

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<sup>3</sup> The Leahy-Smith America Invents Act (“AIA”) includes revisions to 35 U.S.C. §§ 102 and 103 that became effective on March 16, 2013. Because the earliest filed application identified in the ’491 patent has a filing date of September 2, 2014 (Ex. 1001, codes (60), (63), 1:3–18), we apply the AIA-version of 35 U.S.C. § 103.

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claim 21 as being obvious over Hong and Schmid,<sup>4</sup> with the Examiner finding, *inter alia*, that Hong discloses a watch having a touch-sensitive display and an optical sensor (heart monitor) positioned to transmit an optical signal through a dielectric cover. *Id.* at 1123. The Examiner further found that Hong “does not include electrodes for sensing an electrocardiogram of a user,” but that Hong did suggest the inclusion of incorporating electrocardiogram components in the device. *Id.* at 1123–1124. The Examiner also found that “Schmid demonstrates that wrist worn electrocardiogram measurement devices were known in the art.” *Id.* at 1124. For dependent claim 24, the Examiner found that Hong disclosed that “[t]he transmission of recharge energy from the charger may be wireless,” but that it “is not clear if there is a recharging receive coil located within the device to receive charging energy.” *Id.* at 1125. The Examiner then found that “Mistry et al., similar to Hong et al., describes a wearable sensing device with similar charging features.” *Id.* The Examiner concluded that “[w]hile neither reference explicitly teaches the arrangement of the elements in the manner as claimed, modification of the charging elements described by the prior art in the manner as claimed is considered to have been obvious . . . .” *Id.* at 1125–1126.

An interview between the Examiner and the applicant was conducted, with the Examiner summarizing that interview as follows:

Applicant intends to amend claim 21 with limitations similar to claim 24 that further define the dielectric cover serving as the point for wireless transfer of energy to recharge the electronic

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<sup>4</sup> US 4,448,199, issued May 15, 1984 (Ex. 2021). This is not the same Schmid reference discussed in the Petition. *See* Pet. 52, 54 (citing Ex. 1029 (US 4,375,219, issued March 1, 1983)).

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watch as opposed to Schmid which has a separate recharge port requiring [physical] coupling and the wireless recharging antenna of Mistry et al. located within the band. In this manner the dielectric cover is a window for wireless data and power transmission. Such amendment would overcome the prior art of record, however further search and consideration would be required.

*Id.* at 607.

In response, the applicant amended the claims. *Id.* at 595–599. The applicant amended independent claim 21 to specify that the optical signal is transmitted through the cover’s dielectric material and added the requirement of “a charging coil positioned within the housing and configured to receive wireless power through the dielectric material of the cover.” *Id.* at 595. The applicant stated that “[d]uring the interview, . . . [t]he Examiner indicated that amendments similar to those presented herein would likely overcome the pending rejections, but that further searching would be necessary.” *Id.* at 600. According to the applicant, “[a]s discussed in the interview, the cited references do not disclose or suggest an electronic watch that includes an optical sensor and a charging coil that are configured to pass both optical signals and wireless power signals through dielectric material of a single cover.” *Id.* at 601.

In response, the Examiner issued a Notice of Allowability that did not include a statement of reasons for allowance. *Id.* at 472.

### III. 35 U.S.C. § 325(d)

Patent Owner contends that we should exercise discretion under 35 U.S.C. § 325(d) to deny the Petition, applying the Board’s precedential decision in *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020) (precedential)

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(“*Advanced Bionics*”). Prelim. Resp. 32–53; PO Prelim. Sur-reply 1–7.

For the reasons below, we do not exercise discretion to deny institution under § 325(d).

Section 325(d) provides that, in determining whether to institute an *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). The Board uses a two-part framework in determining whether to exercise its discretion under § 325(d), specifically:

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if either condition of [the] first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

*Advanced Bionics*, Paper 6 at 8.

Patent Owner first implicitly argues that Petitioner should not be allowed to file a Preliminary Reply to address § 325(d) issues, because, in Patent Owner’s view, the Petition was inadequate in this regard. *See* PO Prelim. Sur-reply 1–3 (argument under the heading “Petitioner Should Not Be Allowed to Use Its Reply to Cure its Failure to Meet its Burden Under 325(d)”); *see id.* at 3 (“The current record thus presents a clear case of improper burden shifting, with Petitioner presenting a cursory and deficient 325(d) analysis in its Petition, and attempting to cure that deficiency with the benefit of reviewing the POPR’s detailed rebuttal arguments.”). Patent Owner argues that Petitioner had a burden to fully address the *Advanced Bionics* inquiries in the Petition and before a § 325(d) argument was raised

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by Patent Owner in the Preliminary Response. *See, e.g., id.* at 3 (“Petitioner . . . had the burden to demonstrate material error during prosecution, and its Petition could and should have addressed the issues/arguments now presented in the Reply.”); Prelim. Resp. 46–47 (“Petitioner [in the Petition] does not engage with the prosecution record and the amendments and arguments therein that led to allowance” and “Petitioner did not grapple with the very foreseeable issue of what led to allowance, nor did Petitioner articulate any rationale explaining how or why the examiner erred in reaching this conclusion.”). According to Patent Owner, “[a]t a minimum . . . , the petition here should have scrutinized the prosecution record to address these [*Advanced Bionics*] inquiries in its §325(d) analysis.” PO Prelim. Sur-reply 1.

Patent Owner is rehashing the unpersuasive arguments made in a related case in its opposition to Petitioner’s request to file a reply to the Preliminary Response’s arguments based on the unforeseeability of the specific § 325(d) arguments. *See* IPR2023-00634, Ex. 1051 (transcript of the conference call discussing Petitioner’s request to file a reply), 12:20–26:18, 29:12–31:20; *see* PO Prelim. Sur-reply 2–3 (continuing to argue that “Petitioner . . . failed to address this foreseeable issue in the Petition’s 325(d) analysis.”). We addressed those arguments in our order authorizing Petitioner to file a Reply to the Preliminary Response (and for Patent Owner to file a Sur-reply). IPR2023-00634, Paper 11, 3–5. We stated, *inter alia*, that “Patent Owner’s basis for the allegation of an improper burden shift is unclear” and noted that “*Advanced Bionics* addresses the analysis done by the Board at the time of evaluating the parties’ arguments and evidence and determining whether to exercise discretion to deny a petition.” *Id.* at 5

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(citing *Advanced Bionics*, Paper 6 at 8). The basis for Patent Owner’s arguments concerning a purported burden as of the time of the petition filing remains unclear. Patent Owner identifies no rule, statute, or precedent that requires a petitioner to meet any burden on § 325(d) issues in the petition and prior to the filing of a patent owner’s preliminary response.<sup>5</sup> We decline to refuse consideration of Petitioner’s Reply to the Preliminary Response as Patent Owner urges. We now turn to Patent Owner’s *Advanced Bionics* arguments.

Patent Owner argues that the Petition should be discretionarily denied, asserting that: “(1) the Petition advances substantially the same prior art references or arguments that were previously presented to and considered by the Examiner during prosecution and (2) Petitioner has not demonstrated that the Office erred in a manner material to the patentability of challenged claims.” Prelim. Resp. 32 (citing *Advanced Bionics*, Paper 6 at 8).

Regarding the first contention, Patent Owner does not assert that the Petition’s references were before the Examiner during the prosecution of the application that led to the ’491 patent, but argues that the Petition’s

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<sup>5</sup> We do not hold that it is never necessary for a petition to address a § 325(d) issue (or any other discretionary denial issue). A reply to a patent owner’s preliminary response is not a matter of right. If, for example, a petition does not address adequately a foreseeable issue, petitioner does so at its own peril. *See, e.g.*, 37 C.F.R. § 42.108(c) (“A petitioner may seek leave to file a reply to the preliminary response in accordance with §§ 42.23 and 42.24(c). Any such request must make a showing of good cause.”).



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references Kotanagi, Honda, and Choi are substantially the same as certain references considered by the Examiner.<sup>6</sup> *See id.* at 36, 44–45.<sup>7</sup>

As mentioned above, the Examiner indicated that the feature deemed to make the claims allowable was “the dielectric cover serving as the point for wireless transfer of energy to recharge the electronic watch” where “the dielectric cover is a window for wireless data and power transmission.”

Ex. 1002, 607. The applicant similarly characterized, as the features distinguishing the claimed invention over the Examiner’s prior art, “an optical sensor and a charging coil that are configured to pass both optical signals and wireless power signals through dielectric material of a single cover.” *Id.* at 601; *see* PO Prelim. Sur-reply 2 (Patent Owner asserting that “the claims were allowed in view of a specific device configuration where the device’s rear cover enables transmission of optical signals to/from a biosensor module and wireless power signals to a charging coil.”).

Petitioner contends that the references relied on in the Petition are “materially stronger” than and, therefore not cumulative of, the references before the Examiner. *See* Pet. Prelim. Reply 1. Petitioner also contends that Patent Owner, in the Preliminary Response, only argues references

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<sup>6</sup> We focus our discussion on the prosecution references discussed by Patent Owner in its Preliminary Sur-reply. Patent Owner initially identified in the Preliminary Response several prosecution references, but did not argue all of those references in the Sur-reply. For example, Patent Owner, in the section addressing the *Advanced Bionics* second prong (material error), identified several references each allegedly providing a general disclosure of an individual feature. *See* Prelim. Resp. 45 (Prong 2 section heading), 49–51.

<sup>7</sup> Patent Owner also asserts that “the Petition advances . . . arguments that are cumulative of what was previously presented to the Office” (Prelim. Resp. 33), but does not clearly identify any such arguments.



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individually and that Patent Owner “never argues that [the Petition’s] motivations are cumulative to anything in the file history, or that any *sets* of file history references can combine so naturally [as Kotanagi and Honda].” *Id.* at 5–6. According to Petitioner, “it is *Kotanagi* and *Honda together* that surpass any individual reference or set of references in the file history to render the claims obvious.” *Id.* at 3.

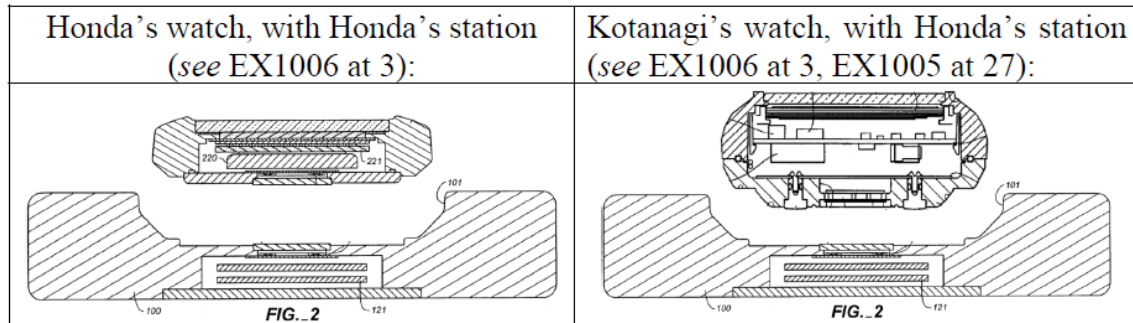
Petitioner’s proposed combination of Kotanagi and Honda form the basis of all the challenges in the Petition. Petitioner contends that Kotanagi and Honda both teach the use, in an electronic watch, of both a biosensor and wireless charging, with each reference focusing on the component of one of those aspects and each having the pertinent component aligned with a glass covered opening. *See, e.g.,* Pet. 20–24. Petitioner asserts that glass is a non-conductive and dielectric material. *Id.* at 46. According to Petitioner, these references each provide teachings that motivate combining it with the other to arrive at a watch having both an optical signal biosensor and a wireless charging coil aligned with a glass covered opening in the rear face of the watch. For example, Petitioner contends that:

Kotanagi teaches a pulse rate biosensor watch that may be charged in a “contactless state” . . . motivating a POSITA to look to Honda . . . [and] Honda teaches wireless watch charging and sensors for measuring pulse/heart rate of the body . . . motivating a POSITA to look to Kotanagi to “implement a predictable variation” . . . . Thus, there is an express motivation in both references that the subject matter in each should be combined with the other.

*Id.* at 28; *see also* Pet. Prelim. Reply 5 (“[T]he petition explains and illustrates how *Honda* suggests natural modifications to *Kotanagi* (which has available space for the coil), and how well they fit together.”). Petitioner also contends that not only are the references’ teachings combinable, but that

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the disclosed embodiments are physically combinable in a complimentary manner. *See* Pet. 26 (“a POSITA would have readily combined Kotanagi’s watch with Honda’s charging station at least because the figures suggest complementary shapes.”). Petitioner provides, as reproduced below, a demonstrative figure alongside Honda’s Figure 2.



*Id.*; *see also* Pet. Prelim. Reply. 5 (same). Above, on the left is Honda’s Figure 2 (a sectional view showing the construction of Honda’s station and electronic watch), and, on the right, is Honda’s station and Kotanagi’s electronic watch. Pet. 26; Ex. 1005, Fig. 7; Ex. 1006, 5:20–21.

Patent Owner argues that “like Kotanagi, Hong [Ex. 2020]—which was applied in a rejection—discloses a wrist-worn device that includes (1) rear biosensors that facilitate transmission of optical signals via device’s rear cover/opening and (2) wireless charging capability.” PO Prelim. Sur-reply 4–5; *see also* Prelim. Resp. 37–38. Petitioner, in reply, notes that the Examiner stated that Hong does not disclose ECG electrodes, but the Petition’s Kotanagi reference does disclose electrodes on the device. *See* Pet. Prelim. Reply 2 (citing Ex. 1002, 1123); *but see* Pet. 50–52 (asserting that Kotangi’s electrodes measure a potential difference between them, but relying on Choi for the teaching of using electrodes for ECG measurement). Patent Owner argues that the recitation in claim 1 of ECG electrodes was not deemed by the Examiner to be a feature that led to allowance and, “[t]hus, it

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stands to reason that this feature was disclosed by the art of record,” such as the Examiner’s cited Schmid reference. PO Prelim. Sur-reply 6. We determine that Kotanagi’s disclosure of a watch having both an optical sensor and electrodes is at least slightly stronger than Hong’s disclosure, which Patent Owner impliedly asserts would have to be combined with another reference to have electrodes. More importantly, even if Hong has general disclosures similar to Kotanagi (such as a rear biosensor and wireless charging), Kotanagi provides a more natural, and thus stronger, primary reference to be combined with the Petition’s Honda reference, the teachings of which go directly to arrangement that the Examiner indicated would lead to allowable subject matter. *See* Ex. 1002, 607 (the Examiner stating: “Applicant intends to amend claim 21 with limitations similar to claim 24 that further define the dielectric cover serving as the point for wireless transfer of energy to recharge the electronic watch”).

Patent Owner next argues that prosecution reference Mooring (Ex. 2004) is cumulative of Honda because Mooring “unequivocally describes wireless charge signal transmissions to an inductive charging coil via a rear surface of a watch” and “additionally teaches watches with biometric sensing capabilities.” PO Prelim. Sur-reply 5 (citing Ex. 2004, 1:38–53); *see* Prelim. Resp. 39. We determine that Mooring’s teaching of a charging coil located generally on the back of a device is not as strong as Honda’s teachings of aligning a coil with a glass covered opening. *See* Pet. Prelim. Reply 2 (asserting that, “[b]efore allowance, the file history stated the claimed ‘dielectric cover serving as the point for wireless transfer of energy to recharge the electronic watch’ distinguishes [the prior art] . . . But Honda teaches these features.” (quoting Ex. 1002, 607)).

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Further regarding the alleged cumulateness of Honda, Patent Owner argues that the “teaching of a device with biometric sensing and wireless charging capabilities was not limited to Applicant-identified references like Mooring, but was also present in references, like Hong and Mistry, that were applied in a rejection during prosecution.” PO Prelim. Sur-reply 5. Patent Owner further argues that Mensinger discloses wireless charging. Prelim. Resp. 40 (citing Ex. 2006, 26:2–27). Petitioner persuasively replies that those references do not specify where to place a wireless charging coil and that Patent Owner has not pointed to anything comparable or superior to Honda’s specific teaching of the recited arrangement of the wireless charging coil relative to the cover. *See* Pet. Prelim. Reply 2–3; *see, e.g., id.* at 3 (“*Mistry* only refers to a coil ‘in or on’ the device body or band.”).

Petitioner’s Ground 2 challenges, *inter alia*, independent claim 1, which is the only independent claim reciting a touch-sensitive display and ECG electrodes. Petitioner contends that Choi discloses a touch display on a biosensing watch and also provides a teaching to modify Kotanagi to use its electrodes to obtain an ECG. Pet. 44, 51–52. Patent Owner argues that the individual features were present in prosecution references, and specifically asserts that Hong discloses a touch display and that Schmid discloses the claimed electrodes. PO Prelim. Sur-reply 6; *see* Prelim. Resp. 43–44. Thus, Patent Owner utilizes a combination of two references to equal the subject teachings of Petitioner’s single reference. We agree with Petitioner’s argument that “by teaching both ECG electrodes *and* a touch display, *Choi* is superior to *Schmid* and *Hong* in this regard.” Pet. Prelim. Reply 4.

We agree with Petitioner that at least Kotanagi and Honda, and the proposed combination thereof, are stronger than and not substantially the

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same as the references previously before the Examiner. In particular, Honda's teaching of aligning a charging coil over a glass covered opening in the back of the watch directly relates to the features identified as the reason for allowance and is not cumulative of a teaching in the art before the Examiner. Accordingly, although we have considered Patent Owner's request for exercise of discretion to deny institution under 35 U.S.C. § 325(d), on the record before us, we conclude that denial of institution on that basis is not warranted. We proceed to consider the merits of Petitioner's proposed grounds of unpatentability below.

#### IV. ANALYSIS OF PETITIONER'S CHALLENGES

##### A. *Principles of Law*

Petitioner bears the burden of persuasion to prove unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4), if present, any objective evidence of obviousness or non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

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*B. The Level of Ordinary Skill in the Art*

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quoting *Custom Accessories, Inc. v. Jeffrey–Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)).

Petitioner contends that:

A POSITA [(person of ordinary skill in the art)] of the ’491 patent would have had at least a bachelor’s degree in a discipline related to biomechanical devices, such as Mechanical Engineering, Biomedical Engineering, Electrical Engineering, Physics, Industrial Design, or an equivalent discipline, and at least three years of experience working with or developing electronic medical or consumer devices.

Pet. 7; *see also* Ex. 1003 ¶ 41.

Patent Owner contends that:

a person of ordinary skill in the art on or about the claimed priority date of the ’491 Patent would have had at least a bachelor’s degree in electrical engineering, mechanical engineering, biomedical engineering, computer engineering, physics, or a related field, and would have had at least two years of relevant work experience with capture and processing of data or information, including but not limited to physiological information, or equivalents thereof. Less work experience may be compensated by a higher level of education and vice versa.

Prelim. Resp. 24.

We discern no material difference between the parties’ definitions. Petitioner’s definition is consistent with the level of ordinary skill reflected in the prior art references of record. *See Okajima v. Bourdeau*, 261 F.3d

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1350, 1355 (Fed. Cir. 2001) (recognizing that the prior art itself may reflect an appropriate level of skill in the art). For purposes of this decision, we apply Petitioner’s definition of the person of ordinary skill in the art. We note, however, that were we to adopt Patent Owner’s assessment, the outcome of this Decision would be the same.

### *C. Claim Construction*

We apply the same claim construction standard used in district court actions under 35 U.S.C. § 282(b), namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner proposes constructions for certain terms concerning the cover material—“a cover formed from a dielectric material,” “a transparent substrate,” and “a cover comprising a non-conductive material”—and window terms such as “defines at least one window” and “window defined.” Pet. 7–10. Patent Owner states: “While not agreeing with Petitioner’s proposed constructions (or lack thereof) for certain claim terms . . . , *solely* for purposes of this Preliminary Response, Patent Owner does not object to the constructions proposed by Petitioner at this time.” Prelim. Resp. 24.



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On this record and for purposes of this decision, we determine that no claim terms require express construction.

*D. The Alleged Obviousness of Independent Claims 7 and 14 Over Kotanagi and Honda (Ground 1)*

Petitioner alleges that claims 7, 11, 14, and 16 of the '491 patent would have been obvious over Kotanagi and Honda. *See* Pet. 15–30 (addressing independent claim 7). Of those challenged claims, claims 7 and 14 are independent. Petitioner contends, *inter alia*, that Kotanagi discloses much of the subject of independent claim 7, and that Honda discloses wireless charging teachings and structure, including the alignment of the charging coil with an opening in the rear of the housing and having a non-conductive cover. *See id.* Patent Owner's Preliminary Response primarily is directed to discretionary denial under § 325(d) and does not contain a section explicitly directed to the merits of Petitioner's challenges. *See* Prelim. Resp. i (Table of Contents). However, Patent Owner, in asserting that the Examiner did not err in allowing the challenged claims, argues that Petitioner's grounds are flawed and therefore fail to show that the claims are unpatentable. *See, e.g., id.* at 47–48. For example, Patent Owner argues that Petitioner's references "suffer from the same deficiencies that the Examiner observed in the art of record—i.e., they fail to disclose or suggest a cover that facilitates **both** optical and wireless power signal transmission." *Id.* at 3. Patent Owner also argues that there would be no reason to modify Kotanagi charging configuration. *See id.* at 47–48. We address the parties' respective positions below.

*1. Kotanagi (Ex. 1005)*

Kotanagi discloses a biological information measuring device in the form of "a wristwatch-type device which detects pulse rate as a type of



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biological information while mounted to the wrist.” Ex. 1005 ¶ 44.

“[B]iological sensor part 8 . . . includes an LED (Light Emitting Diode) (light-emitting part) 5 for emitting light toward the living body while in contact with the living body surface” and “a PD (Photodetector) (light-receiving part) 6 for receiving reflected light from the living body out of the light emitted by the LED 5 and generating a pulse signal (biological information signal) corresponding to the amount of received light.” *Id.* ¶ 46.

Kotanagi’s Figure 7 is reproduced below.

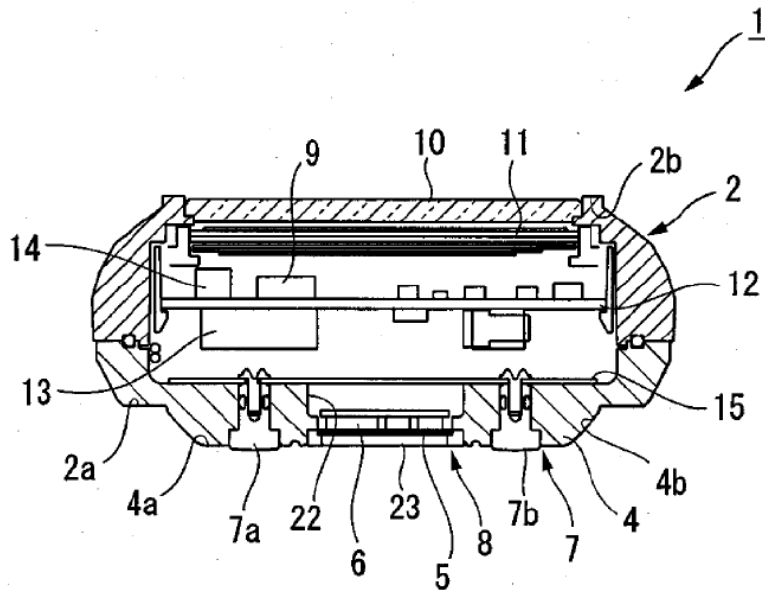


Figure 7 “is a cross-sectional view of a biological information measuring device.” *Id.* ¶ 41.

[A] through-hole 22 passing through the outside and the inside of the housing 2 is formed in the center of the lower surface 4a of the protruding part 4, and a cover glass 23 is fixed to the housing 2 so as to block the through-hole 22. The LED 5 and the PD [photodetector] 6 are disposed adjacent to one another in a direction orthogonal to the longitudinal direction of the housing so as to touch the inside of the glass cover 23. That is, the LED 5 and the PD 6 are configured so as to be dropped into

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the protruding part 4. As a result, the LED 5 and the PD 6 are as close to the living body surface B as possible.

*Id.* ¶ 55. “The pair of electrodes 7a and 7b have a function of detecting whether there is contact with the living body surface B based on the potential difference between the electrodes.” *Id.* ¶ 59.

Kotanagi discloses that a connection terminal for recharging the battery by an external device is located on the side surface of the housing. *Id.* ¶ 53. “In addition, rather than the external connection terminal 21, a transformer or the like for supplying power to a recharger and to the inside of the housing 2 may be provided so as to recharge the rechargeable battery 13 in a contactless state.” *Id.*

## 2. Honda (Ex. 1006)

Honda “relates to an electronic apparatus in which one of two devices charges the other in a non-contact fashion.” Ex. 1006, 1:4–6. Honda, in describing Figure 1, discloses that “the electronic watch 200 detects biological information including the pulse rate or the heart rate of the body through an unshown sensor and stores it.” *Id.* at 6:17–20.

Honda’s Figure 2 is reproduced below.

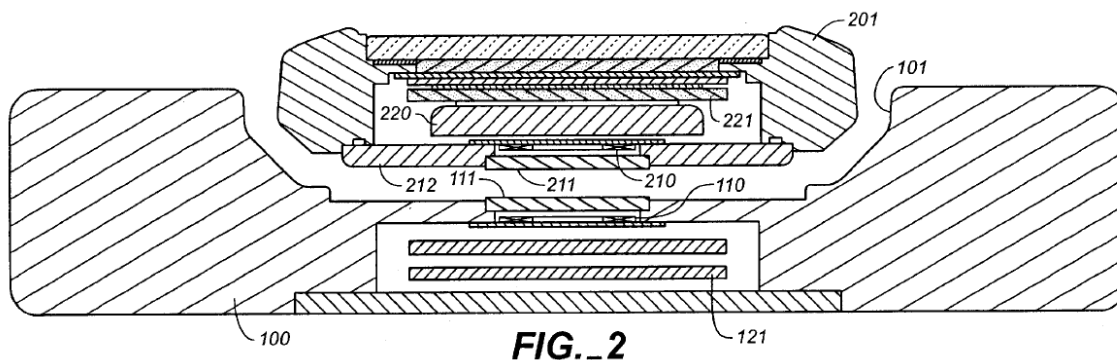


Figure 2 is a sectional view showing the construction of a station and an electronic watch. *Id.* at 5:20–21. “As shown, a watch-side coil 210 for the data transmission and the battery charging is arranged in a case back 212 of

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the watch body 201 and is covered with a cover glass 211.” *Id.* at 6:22–25.

“The watch body 201 includes a circuit board 221, connected to a secondary battery 220 and a watch-side coil 210.” *Id.* at 6:25–27. “A station-side coil 110 is arranged in the portion of the socket 101 of the station 100, facing the watch-side coil 210, and is covered with a cover glass 111.” *Id.* at 6:28–30.

Honda discloses measured data comparing device housing materials and transmission efficiencies. *Id.* at 13:33–34, Fig. 15. Honda states that “the use of an insulating material [such as glass] for the external housing results in a transmission efficiency ten times as high as the one achieved by a stainless [steel] product.” *Id.* at 13:45–48, Fig. 15 (depicting transmission efficiency for stainless and glass materials); *see also id.* at 2:44–50 (explaining that eddy currents that take place in the electrically conductive stainless steel material of a device weakens the electromagnetic coupling).

### *3. The Alleged Obviousness of Independent Claim 7 Over Kotanagi and Honda*

For reasons discussed below, Petitioner has shown a reasonable likelihood that it would prevail in establishing unpatentability of independent claim 7 as obvious over Kotanagi and Honda.

- a. [7a] A wearable electronic device comprising:*
  - [7b] a housing formed from a conductive material and defining a first opening opposite to a second opening;*
  - [7c] a band attached to the housing and configured to secure the wearable electronic device to a user;*
  - [7d] a display positioned in the first opening;*

Petitioner asserts that “Kotanagi describes a ‘wristwatch-type device which detects pulse rate as a type of biological information while mounted to the wrist.’” Pet. 15 (quoting Ex. 1005 ¶ 44). Petitioner contends that Kotanagi teaches a housing made of metal such as aluminum, that aluminum

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is strongly conductive, and that the housing has the recited “first opening” on top and a “second opening” at the bottom. *Id.* at 16–17 (citing, *inter alia*, Ex. 1005 ¶ 48, Figs. 6, 7; Ex. 1003 ¶ 134); *see also id.* at 16 (asserting that “Honda explicitly describes its metal housing as ‘conductive.’” (citing Ex. 1006, 13:22–32; Ex. 1003 ¶¶ 133–134)). Petitioner further contends that Kotanagi has a band for fixing the device to an arm and a display in the first (top) opening. *Id.* at 17–18 (citing, *inter alia*, Ex. 1005 ¶¶ 27, 60, Figs. 1, 6, 7; Ex. 1003 ¶¶ 135–136). Patent Owner does not raise any arguments regarding these contentions.

*b. [7e] a cover comprising a non-conductive material and positioned over the second opening, the cover forming a portion of an exterior surface of the wearable electronic device;*

*[7f] a biosensor module positioned below the cover configured to pass an optical signal through a window defined within the non-conductive material of the cover; and*

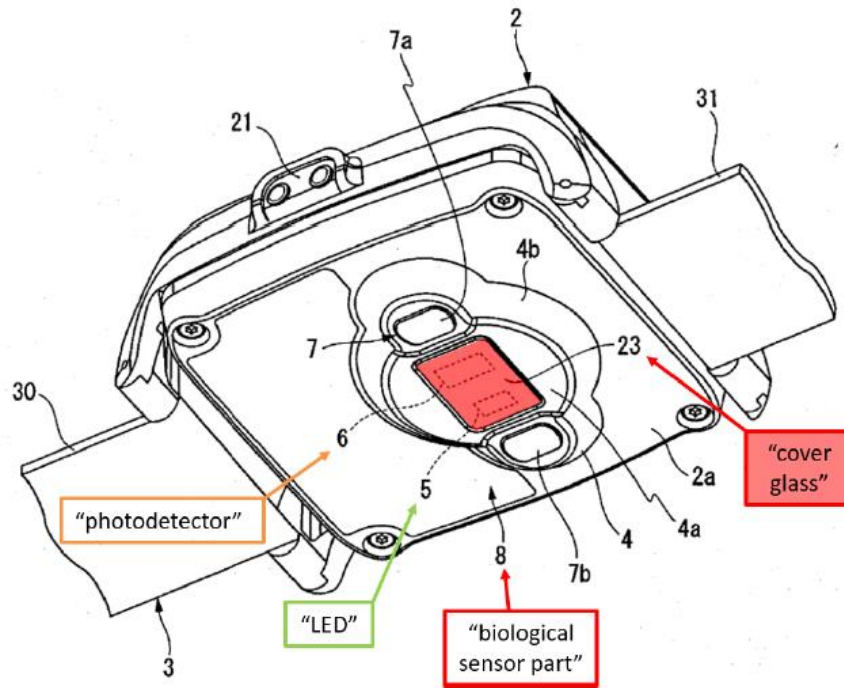
Petitioner contends that Kotanagi’s cover glass 23 is positioned as claimed (over the second opening) and forms a portion of the exterior surface, and that a person of ordinary skill in the art would have known that glass is non-conductive. Pet. 18–19 & n.8 (citing Ex. 1001, 58:27–30 (dependent claim 3); Ex. 1003 ¶ 137; Ex. 1005 ¶ 55; Ex. 1006, 15:61–62 (Honda referring to an “insulating body (glass, for example)”). Petitioner additionally contends that Honda also “discloses a biosensing watch with a metal case back and a non-conductive glass cover.” *Id.* at 19 (citing Ex. 1006, 15:47–49, Fig. 2; Ex. 1003 ¶ 138).

Petitioner further contends that “Kotanagi teaches . . . [a] biosensor module ‘disposed on the lower surface 4a of the protruding part 4,’” and that the biosensor module includes Kotanagi’s LED (Light Emitting Diode) 5

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and PD (photodetector) 6 for generating a pulse signal. Pet. 20 (citing Ex. 1003 ¶¶ 140–141; Ex. 1005 ¶ 46). Petitioner provides an annotated version of Kotanagi's Figure 5, which is reproduced below.

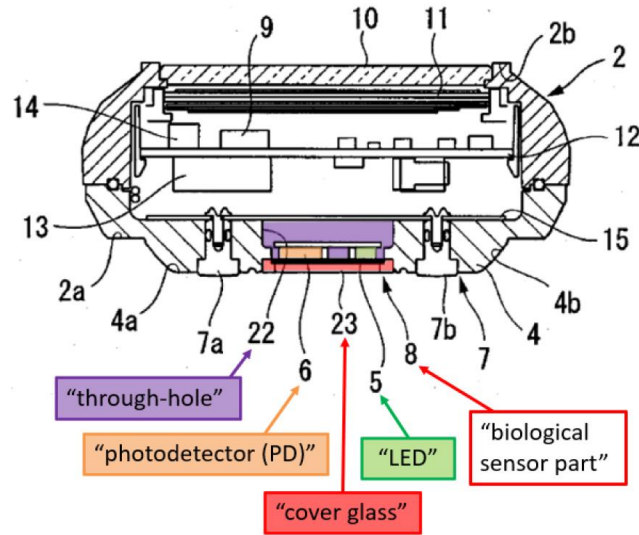


*Id.* Above, is Petitioner's annotated version of Kotanagi's Figure 5, which is a perspective view of a biological information measuring device. Ex. 1005 ¶ 41. Shown are Petitioner's annotations for biological sensor part 8, which includes LED 5 and photodetector 6, and cover glass 23 (shaded red). *See id.* ¶¶ 46, 55.

Petitioner also provides an annotated version of Kotanagi's Figure 7, which is reproduced below.

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Pet. 21. Above, is Petitioner's annotated version of Kotanagi's Figure 7, which is a cross-sectional view of a biological information measuring device. Ex. 1005 ¶ 41. Shown are Petitioner's annotations for biological sensor part 8, LED 5 (green), photodetector 6 (orange), cover glass 23 (red), and through-hole 22 (purple). *See id.* ¶¶ 46, 55. Petitioner contends that a person of ordinary skill in the art would understand that Kotanagi's LED and photodetector work by passing optical signals through the cover glass.

Pet. 21 (citing Ex. 1003 ¶¶ 142–143; Ex. 1005 ¶ 55).

Patent Owner does not raise any arguments regarding these contentions.

- c. [7g] a wireless charging receive coil aligned with the second opening and below the cover, the wireless charging receive coil configured to inductively couple to an external wireless charging device through the non-conductive material of the cover.

Petitioner contends that the proposed combination of Kotanagi and Honda teaches the recited alignment of a wireless charging receive coil relative to the bottom opening in the device housing and with the coil

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configured to charge the device through the non-conductive cover. Pet. 22–30.

Petitioner first contends that Kotanagi discloses the use of a wireless charging receive coil. Specifically, Petitioner notes that “Kotanagi teaches that ‘a transformer or the like for supplying power to a recharger and to the inside of the housing 2 may be provided *so as to recharge the rechargeable battery 13 in a contactless state.*’” *Id.* at 22 (quoting Ex. 1005 ¶ 53).

Petitioner contends that a person of ordinary skill in the art would have known “that transformers use coils and that contactless charging uses a wireless charging receive coil.” *Id.* (citing Ex. 1003 ¶ 144).

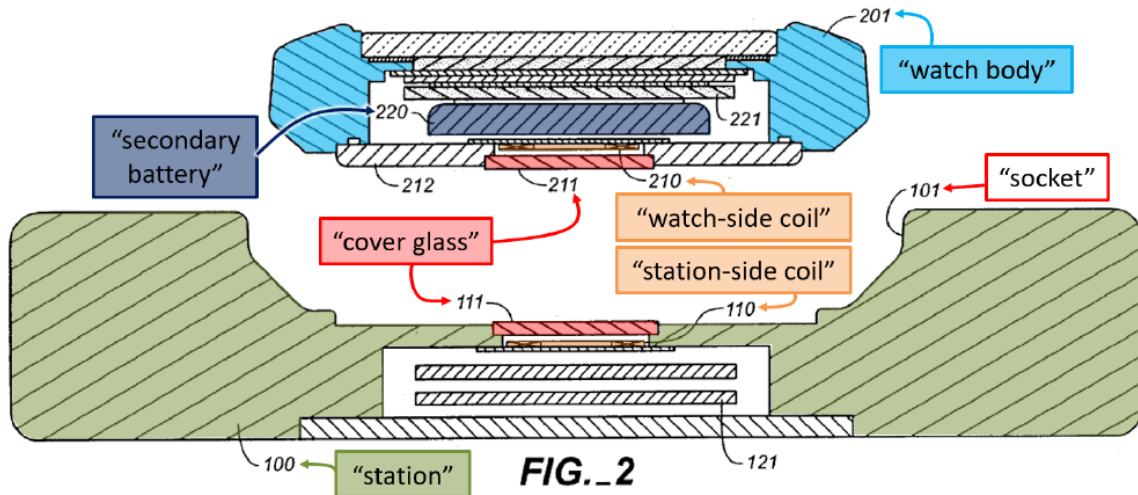
For the recited coil alignment with the housing opening, Petitioner turns to Honda. Petitioner contends that Honda discloses a contactless charging system for an electronic watch. *Id.* Petitioner further contends that Honda is like Kotanagi in that Honda teaches a biosensor and has a cover glass over an opening in the bottom face of the watch. *Id.* at 22–23 (citing Ex. 1006, 6:17–19, Figs. 1, 2; Ex. 1003 ¶ 145). According to Petitioner, “[t]hese similarities increase a POSITA’s expectation of a successful combination.” *Id.* at 23 (citing Ex. 1003 ¶ 146). Petitioner further asserts that, “[b]ehind Honda’s cover glass is a charging coil” and “Honda thus teaches a ‘wireless charging receive coil’ ‘aligned with’ the opening, and ‘below the cover,’ as claimed.” *Id.* (citing Ex. 1006, 6:22–25, Fig. 2; Ex. 1003 ¶ 147).

Petitioner additionally contends that “Honda further teaches inductive coupling of the charging station coil and the watch coil.” *Id.* at 24 (citing Ex. 1006, 6:36–40, Fig. 2; Ex. 1003 ¶ 148). One of Petitioner’s annotated versions of Honda’s Figure 2 is reproduced below.



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*Id.* at 24. Above, is Petitioner’s annotated version of Honda’s Figure 2, which is a sectional view showing the construction of a station and an electronic watch. Ex. 1006, 5:20–21. Shown is watch-side coil 210 (orange) arranged in case back 212 of watch body 201 (light blue) and covered with cover glass 211 (red). *Id.* at 6:22–25. Secondary battery 220 (dark blue) is inside watch body 201. *See id.* at 6:25–27. Also shown is station-side coil 110 (orange) arranged in the portion of socket 101 of station 100 (green), facing watch-side coil 210 (orange), and covered with cover glass 111 (red). *Id.* at 6:28–30.

Petitioner’s proposed combination modifies Kotanagi to have a charging receive coil in the housing and aligned behind the cover glass. *See* Pet. 24. Petitioner contends that:

Given Honda’s teaching of a wireless receive coil near a rear opening similar to that taught in Kotanagi (where both Honda’s and Kotanagi’s openings have a cover glass), a POSITA would have used Honda’s teachings to either:

- 1) modify Kotanagi to position a wireless charging coil behind Kotanagi’s cover glass, LED, and PD [photodetector]; or
- 2) enlarge Kotanagi’s opening and cover glass to make room for a coil behind the cover glass, surrounding the LED and PD.

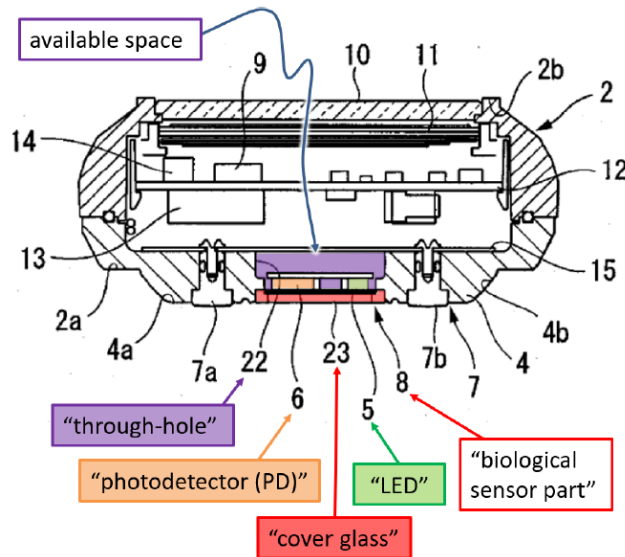


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In either case, the resulting magnetic flux would pass through the cover glass, as taught by Honda.

*Id.* at 24–25. Petitioner asserts that there already is space available in Kotanagi and this would make “the modification from Honda simple and feasible, with a high expectation of success.” *Id.* at 25 (citing Ex. 1003 ¶ 142). In that regard, Petitioner provides an annotated version of Kotanagi’s Figure 7, which is reproduced below.



*Id.* Above, is Petitioner’s annotated version of Kotanagi’s Figure 7 (a cross-sectional view of a biological information measuring device), labeling “available space” (purple) in through-hole 22 and around LED 5 (green) and photodetector 6 (orange), and above cover glass 23 (red). *See* Ex. 1005 ¶¶ 41, 55.

Petitioner also asserts that Honda teaches that metal covers are inferior for power transmission due to eddy currents and, therefore, a person of ordinary skill in the art would have known to wirelessly charge through a non-conductive material. *Id.* at 26–27 (citing Ex. 1003 ¶ 155; Ex. 1006, 2:48–50, 13:30–32, Fig. 15).

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Petitioner asserts that Honda teaches using its wireless receive coil with an external charging device through a non-conductive cover material, and that a person of ordinary skill in the art would have used Honda's charging station or similar with Kotanagi's watch. Pet. 25–26 (citing Ex. 1003 ¶ 150; Ex. 1005 ¶ 53; Ex. 1006, 6:7). Petitioner contends that the combination “teach[es] . . . aligning and positioning the coil within Kotanagi's watch” and that this “also configures the coil ‘to inductively couple to an external wireless charging device through the non-conductive material of the cover’ as claimed.” *Id.* at 26 (citing Ex. 1003 ¶ 151).

Petitioner contends that a person of ordinary skill in the art would have been motivated to make the proposed modifications. Pet. 27–28. In that regard, Petitioner further contends:

Kotanagi teaches a pulse rate biosensor watch that may be charged in a “contactless state,” (EX1005 ¶53), motivating a POSITA to look to Honda for “familiar elements” that do “no more than yield predictable results” (*KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 401 (2007)). Honda teaches wireless watch charging and sensors for measuring pulse/heart rate of the body (EX1006 6:14–20; 8:40–42), motivating a POSITA to look to Kotanagi to “implement a predictable variation” (*KSR* at 401). Thus, there is an express motivation in both references that the subject matter in each should be combined with the other. *See id.* (noting that such a teaching, suggestion, or motivation (TSM) is helpful to show obviousness).

*Id.* at 28 (citing Ex. 1003 ¶ 155); *see also id.* at 27 (“Kotanagi and Honda were both assigned to Seiko companies . . . . Thus, a POSITA having Kotanagi would have also had access to Honda and readily combined teachings from the two references.”).

According to Petitioner, “[b]oth [the embodiments of Kotanagi and Honda] have a watch shape, both have biosensors, and both have a cover

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glass over an opening in the bottom face of the watch.” Pet. 28. Petitioner contends that, because of the similarities, a person of ordinary skill in the art would “expect success when combining features or inserting components from one into the other.” *Id.* (citing Ex. 1003 ¶ 156); *see also id.* at 29 (citing Fraser (Ex. 1041) as “evidence of both the feasibility of . . . a modification [where Kotanagi’s opening and cover glass are enlarged], as well as a motivation for this approach (e.g., to reduce apparatus thickness).” (citing Ex. 1003 ¶¶ 157–158; Ex. 1041 ¶ 26, Fig. 3)).

Patent Owner, in its arguments concerning § 325(d), asserts that each of Petitioner’s references fails to disclose every limitation of the challenged claims. For example, Patent Owner argues that:

Specifically, like the already-considered prior art during prosecution, neither Kotanagi nor Honda disclose or suggest a wrist-mounted device with a rear cover that enables **both** wireless charging and biometric sensing. At best, each of these references teaches **either** wireless charging **or** biometric sensing via the rear cover/opening of the corresponding wrist-mounted device—much like the above-described references . . . that were cited and considered during prosecution.

Prelim. Resp. 47; *see also, e.g., id.* at 34 (“Kotanagi does not disclose or suggest where any wireless charging components (e.g., charge receiving coil, transformer, etc.) are positioned. Nor does Kotanagi disclose or suggest wireless charging using the **same cover** via which optical signals are allegedly transmitted and received by/from the optical elements.”); *id.* at 35 (“Honda does not disclose whether the ‘unshown sensor’ is an optical sensor. . . . Honda also does not disclose any optical signal transmission using such an ‘unshown sensor.’ Nor does Honda disclose or suggest that such optical transmission happens using **the same cover/opening** via which wireless power signals are transmitted.”); *id.* at 43 (“Kotanagi and Honda

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(and even Choi) are facially cumulative to prior art before the Examiner at least by virtue of them having the same deficiency as the prior art before the examiner—i.e., they each individually did not disclose or suggest this particular feature [of both wireless power and optical signal transmission through the rear cover], which ultimately led to allowance of the claims.”). To the extent that these are offered as arguments regarding the merits of the patentably challenges, we do not find them persuasive on the present record. Petitioner’s challenges are premised on the contention that the *combination* of Kotanagi’s and Honda’s teachings renders obvious claimed subject matter having a cover that can pass both wireless power and optical signals. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the [challenge] is based upon the teachings of a combination of references.”).

Patent Owner also argues that “that Kotanagi contemplates charging via the side surface (instead of the rear) of its wrist-worn device,” and “there would be no reason or benefit to relocate the wireless charging functionality away from the side surface of the device.” Prelim. Resp. 47–48 (citing Ex. 1005 ¶ 53). Petitioner has provided reasoning as to why a person of ordinary skill in the art would have aligned the coil with the opening and cover glass, and we do not agree with Patent Owner’s arguments regarding another alternative. *Cf. In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (“[J]ust because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes.”).

We determine that Petitioner has demonstrated a reasonable likelihood of proving that Kotanagi in combination with Honda discloses or suggests a wireless charging receive coil aligned with the bottom opening and below a

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non-conductive cover and with the coil configured to inductively couple with a charging device through the cover.

*d. Conclusion as to Independent Claim 7*

Having considered the parties' arguments and evidence, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 7 as being obvious over Kotanagi in view of Honda.

*4. The Alleged Obviousness of Independent Claim 14 Over Kotanagi and Honda*

Petitioner contends that independent claim 14 would have been obvious over Kotanagi and Honda. Pet. 31–40. Independent claim 14 recites an electronic device that is similar to the electronic device of independent claim 7. *See* Ex. 1001, 59:46–60:13. One difference is that claim 14 recites, rather than a cover of non-conductive material, “a cover formed from an optically transparent material” with the device configured to receive wireless power and to measure a user's heart rate through the cover. *Id.* at 60:5–13. Petitioner's contentions for claim 14 are similar to those of claim 7. *See, e.g.,* Pet. 35–40 (addressing the “cover” limitations in the context of the glass cover of the proposed combination). Patent Owner does not raise any arguments regarding Petitioner's contentions for claim 14 beyond those addressed above for independent claim 7.

We determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 14 as being obvious over Kotanagi and Honda.

*E. The Alleged Obviousness of Independent Claim 1 Over Kotanagi, Honda, and Choi (Ground 2)*

Petitioner alleges that claims 1–3, 5, 13, and 17 of the '491 patent would have been obvious over Kotanagi, Honda, and Choi. *See* Pet. 42–54

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(addressing independent claim 1). Of those challenged claims, claim 1 is independent.

Independent claim 1 is similar to independent claims 7 and 14. Claim 1 additionally recites an electronic device having a touch-sensitive display, a rear cover formed from a dielectric material, and two electrodes on the device's rear surface with the device configured to measure an electrocardiogram (ECG) using the electrodes. Ex. 1001, 57:65–58:21.

Petitioner contends that the glass of Kotanagi's cover is a dielectric material. Pet. 46–47 (citing, *inter alia*, Ex. 1003 ¶¶ 222–223). Petitioner also contends that Choi discloses a biosensing watch with a touch display and that it would have been obvious to incorporate a touchscreen in Kotanagi's device. *Id.* at 44–45.

Petitioner further contends that Kotanagi discloses electrodes and that Choi teaches using electrodes to measure the ECG, and that it would have been obvious to modify Kotanagi to obtain an ECG via electrodes. *Id.* at 50–53. Petitioner further contends that a person of ordinary skill in the art “would have known . . . that a pair of ECG electrodes can be spaced as close as 4–5 mm on the back of a watch” and that “would have used Kotanagi's existing electrodes and Choi's teachings to either: (1) use signals from Kotanagi's existing electrodes to obtain an ECG; or (2) add one or more additional electrodes to Kotanagi (as taught by Choi) and use both it and the existing electrodes to obtain an ECG.” *Id.* at 52–53 (citing Ex. 1003 ¶ 233; Ex. 1029, 3:7–15).

We determine that Petitioner has demonstrated a reasonable likelihood of prevailing in its challenge to claim 1 as being obvious over Kotanagi, Honda, and Choi.

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### *F. The Remaining Challenged Claims*

Each of the remaining challenged claims depends from one of the independent claims discussed above. Petitioner contends that each of those dependent claims would have been obvious over Kotanagi and Honda alone (the remaining claims of Ground 1) or in further combination with one or more references. Pet. 30–31 (Ground 1), 40–42 (Ground 2), 54–91 (Grounds 3–8). Patent Owner does not raise any arguments regarding Petitioner’s contentions beyond those addressed above for the independent claims.

## V. CONCLUSION

Petitioner has demonstrated a reasonable likelihood of prevailing in showing the unpatentability of at least independent claims 1, 7, and 14. Accordingly, we institute an *inter partes* review on all challenged claims on all asserted grounds. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”). At this stage of the proceeding, we have not made a final determination with respect to the patentability of any of the challenged claims.

## VI. ORDER

For the foregoing reasons, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–19 of the ’491 patent is instituted with respect to all grounds of unpatentability set forth in the Petition; and

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FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '491 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.



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FOR PETITIONER:

Philip Nelson

[2pmn@knobbe.com](mailto:2pmn@knobbe.com)

Jarom Kesler

[2jzk@knobbe.com](mailto:2jzk@knobbe.com)

Edward Cannon

[2tmc@knobbe.com](mailto:2tmc@knobbe.com)

FOR PATENT OWNER:

W. Karl Renner

[Axf-ptab@fr.com](mailto:Axf-ptab@fr.com)

Roberto Devoto

[devoto@fr.com](mailto:devoto@fr.com)

Craig Deutsch

[deutsch@fr.com](mailto:deutsch@fr.com)

Grace Kim

[gkim@fr.com](mailto:gkim@fr.com)

Andrew Patrick

[patrick@fr.com](mailto:patrick@fr.com)

Karan Jhurani

[jhurani@fr.com](mailto:jhurani@fr.com)